



18 Appeal Brief
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IN THE US PATENT AND TRADEMARK OFFICE

June 25, 2003

Applicants: Rainer Ludwig

Title : MONITORING DEVICE

Serial No.: 09/758 513

Filed : Jan. 11, 2001

Group: 2837

Examiner: McCloud

Confirmation No. 8395

Commissioner for Patents

P.O. Box 1450

Arlington, VA 22313-1450

APPELLANT'S BRIEF ON APPEAL

Dear Sir:

This is an appeal from the decision of the Examiner dated January 2, 2003, finally rejecting claims 1, 3-10, and 39 and objecting to claims 11-38.

REAL PARTY IN INTEREST

The real party in interest is MIDDEX-ELECTRONIC GmbH, the assignee of the entire right, title and interest in the above application.

RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to Applicant or the undersigned which will directly affect, or be affected by or have a bearing on the Board's decision in the appeal. Copending applications Serial No. 09/758,514 and 09/758,515 of common inventorship, ownership and filing date herewith include certain depending claims which may be affected by the Board's decision on appeal (e.g. see claims 37-53 of Serial No. 09/758,514 and claims 20-36 of Serial No. 09/758,515 relating to a seal). Since these copending applications do not constitute prior art, Applicant proposes to obviate any possible double patenting rejection that may be raised by the claims of the above copending applications Serial No. 09/758,514 and Serial No. 09/758,515 by terminal disclaimer, if necessary, following a decision on patentability of rejected claims 1, 3-10 and 39 herein.

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STATUS OF CLAIMS

Claims 1 and 3-39 are pending herein with claims 1, 3-10, and 39 being finally rejected and being the claims on appeal. Claims 11-38 are objected to and indicated to contain allowable subject matter. The pending claims 1 and 3-39 appear in the Appendix.

STATUS OF AMENDMENTS

A response to the final rejection was filed and entered.

SUMMARY OF THE INVENTION

Applicants' invention as defined by independent claim 1 is directed to a monitoring device for checking for a predefined position of a body or for checking for the presence of a body, comprising a pivotal checking element, a motor for driving the checking element, a housing for accommodating the motor, and a seal which is arranged between the checking element and the housing and which extends around a shaft by means of which the checking element is driven, wherein the seal abuts on the checking element and abuts on the housing (see page 1, paragraph 6; page 10, paragraphs 2-5; page 11, paragraphs 1-5; and page 12, lines 1-6 of the specification).

Claim 3 depends from claim 1 and recites that the seal is formed symmetrically about an axis (see page 2, last paragraph).

Claim 4 depends from claim 1 and recites that the seal is seated between the checking element and the housing co-axially relative to the shaft (see page 3, first paragraph).

Claim 5 depends from claim 1 and recites that an intermediate space is formed between the shaft and the seal (see page 3, second paragraph).

Claim 6 depends from claim 1 and recites that the seal is fixed on the checking element such that the seal rotates with the checking element relative to the housing (see page 3, third paragraph).

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Claim 7 depends from claim 6 and recites that the checking element comprises a mounting element for the seal onto which the seal is disposed in order to fix the seal on the checking element for rotation therewith (see page 3, fourth paragraph).

Claim 8 depends from claim 7 and recites that the mounting element is formed by a mounting ring through which the shaft is guided and onto which the seal is disposed (see page 3, fifth paragraph).

Claim 9 depends from claim 8 and recites that an annular recess for accommodating the seal is formed between the mounting element and the checking element (see page 3, last paragraph).

Claim 10 depends from claim 1 and recites that an outer diameter of the seal substantially corresponds to the diameter of the checking element (see page 4, first full paragraph).

Claim 11 depends from claim 1 and recites that the seal comprises a packing ring disposed on the checking element (see page 4, second paragraph).

Claim 12 depends from claim 1 and recites that the seal comprises a collar having a V-shaped sealing lip which abuts the housing (see page 4, third paragraph).

Claim 13 depends from claim 12 and recites that the collar is rotatable with the checking element relative to the housing (see page 4, fourth paragraph).

Claim 14 depends from claim 12 and recites that the outer surface of the collar is substantially in the form of a truncated cone at least when force is not being applied thereto in the axial direction (see page 4, last paragraph).

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Claim 15 depends from claim 14 and recites that an imaginary cone peak of the collar points towards the checking element (see page 4, last paragraph).

Claim 16 depends from claim 14 and recites that the inner surface of the collar is substantially in the form of a truncated cone at least when force is not being applied thereto in the axial direction (see page 5, first full paragraph).

Claim 17 depends from claim 12 and recites that an axial extent of the seal can be varied by the collar (see page 5, second paragraph).

Claim 18 depends from claim 1 and recites that a control device is provided by means of which at least one of the pivotal position, the speed, and the torque of the checking element is controllable (see page 5, third paragraph).

Claim 19 depends from claim 18 and recites that the control device controls the pivotal position, the speed and the torque of the checking element in combination (see page 5, third paragraph).

Claim 20 depends from claim 18 and recites that the pivotal movement is controllable by the control device in a manner such that a maximum permissible torque will lie below a predefined value for the torque (see page 5, last paragraph).

Claim 21 depends from claim 20 and recites that the checking element is adapted to be pivoted commencing from a starting position through a transition region into a monitoring region in which the predefined position of the body lies or in which the presence of a body should be monitored, and the predefined value for the maximum permissible torque in the monitoring region is reduced relative to that in the transition region (see page 6, first full paragraph).

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Claim 22 depends from claim 20 and recites that the motor is an electric motor and the controlling of the maximum permissible torque is effected by limiting the supply of current to the motor (see page 6, second paragraph).

Claim 23 depends from claim 21 and recites that the speed of the checking element is reducible during its transfer from the transition region into the monitoring region (see page 6, third paragraph).

Claim 24 depends from claim 23 and recites that the reduction of the maximum permissible torque is effected after the reduction in the speed of the checking element (see page 6, last paragraph).

Claim 25 depends from claim 21 and recites that the transition region comprises an acceleration region in which the speed of the checking element is increased commencing from the starting position (see page 7, first paragraph).

Claim 26 depends from claim 21 and recites that the transition region comprises a braking region in which the speed of the checking element is reduced (see page 7, first paragraph).

Claim 27 depends from claim 21 and recites that the speed of the checking element in the transition region is maintained substantially constant between an acceleration region and a braking region of the transition region (see page 7, second paragraph).

Claim 28 depends from claim 21 and recites that the speed of the checking element is maintained substantially constant in the monitoring region (see page 7, third paragraph).

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Claim 29 depends from claim 18 and recites that the control device comprises a digital angle transmitter for controlling the pivotal movement of the checking element (see page 7, last paragraph).

Claim 30 depends from claim 29 and recites that the speed and the torque of the checking element are controlled by the control device by means of time-dependent controlling of the position of the checking element (see page 8, first paragraph).

Claim 31 depends from claim 29 and recites that the control device sets the pivotal position of the checking element (see page 8, second paragraph).

Claim 32 depends from claim 29 and recites that the control device sets the speed of the checking element (see page 8, second paragraph).

Claim 33 depends from claim 30 and recites that the control device sets the pivotal position and the speed of the checking element (see page 8, second paragraph).

Claim 34 depends from claim 21 and recites that the control device is adapted to undergo a learning cycle for determining the monitoring region (see page 8, third paragraph).

Claim 35 depends from claim 34 and recites that the monitoring region is set by the control device such that it begins at a certain angular amount prior to the learnt position at which a body is detected in the learning cycle (see page 8, last paragraph).

Claim 36 depends from claim 1 and recites that stop means are provided for limiting pivotal movement of the checking element (see page 9, first paragraph).

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Claim 37 depends from claim 36 and recites that, for the purposes of setting a reference position of the checking element, the checking element is moved at a predefined speed to a stop position in which the stop means touch (see page 9, second paragraph).

Claim 38 depends from claim 37 and recites that, for the purposes of defining the reference position of the checking element in the stop position, the stop means are rotated against each other at low torque (see page 9, third paragraph).

Claim 39 is an independent claim and recites a monitoring device for checking for a predefined position of a body or for checking for the presence of a body, comprising a pivotal checking element, a motor having a shaft for driving the checking element, a housing for accommodating the motor and having an end face through which the shaft passes, and a seal which is arranged between the checking element and the end face of the housing and which extends around the shaft, wherein the seal abuts on the checking element and abuts on the end face of the housing (see page 1, paragraph 6; page 10, paragraphs 2-5; page 11, last paragraph; and page 12, lines 1-6).

ISSUES

FIRST ISSUE

The first issue presented for review is whether the subject matter of claims 1 and 3-10 is anticipated under 35 USC 102(a) by the Huber US Patent 6 130 516.

SECOND ISSUE

The second issue presented for review is whether the subject matter of claim 39 is anticipated under 35 USC 102(a) by the Huber US Patent 6 130 516.

GROUPING OF THE CLAIMS

Claims 1 and 3-39 do not stand or fall together. Claims 1 and 39 are independent claims which are separately patentable since claim 39 further recites that the seal is arranged between the checking element and an end face of the housing and that the seal abuts on the checking element and abuts on the end face of the housing. Depending claim 3 is separately patentable from claim 1 in further reciting that the seal is formed symmetrically about an axis. Depending claim 4 is separately patentable from claim 1 in further reciting that the seal is seated between the checking element and the housing co-axially relative to the shaft. Depending claim 5 is separately patentable from claim 1 in further reciting that an intermediate space is formed between the shaft and the seal. Depending claim 6 is separately patentable from claim 1 in further reciting that the seal is fixed on the checking element such that the seal rotates with the checking element relative to the housing. Depending claim 7 is separately patentable from claim 6 in further reciting that the checking element comprises a mounting element for the seal onto which the seal is disposed in order to fix the seal on the checking element for rotation therewith. Depending claim 8 is separately patentable from claim 7 in further reciting that the mounting element is formed by a mounting ring through which the shaft is guided and onto which the seal is disposed. Depending claim 9 is separately patentable from claim 8 in further reciting that an annular recess for accommodating the seal is formed between the mounting element and the checking element. Depending claim 10 is separately patentable from claim 1 in further reciting that an outer diameter of the seal substantially corresponds to the diameter of the checking element. Claims 11-38 are separately patentable over the claim or claims from which they depend in view of the examiner's indication that the subject matter of these claims is allowable.

ARGUMENT

FIRST ISSUE:

The rejection of claims 1 and 3-10 as anticipated under 35 USC 102(a) by the Huber US Patent 6 130 516 is in error.

The examiner argues that Huber teaches Applicant's monitoring device set forth in claim 1 and refers particularly to a seal of Huber located between a checking element (pin holder) 32 and a housing 16 in the area between reference numeral 28 and reference numeral 30 wherein that area allegedly abuts on the checking element (pin holder) 32 and on the end face of the housing 16.

The examiner is believed to be in error in construing the Huber '516 patent to anticipate Applicant's claim 1. In particular, the Huber '516 patent discloses a double lip seal 28 for sealing the passage of the shaft 26 through the face-sided cover of the housing 16 against chips and coolant (see patent column 2, lines 64-67) and O-rings seals 30 for sealing the respective face-sided cover of the housing 16 (see patent column 2, line 67 through column 3, line 1).

The area between reference numerals 28 and 30 referred to by the examiner as a seal in actuality comprises one end (i.e. one of the so-called face-sided covers) of the housing 16. In particular, at column 2, lines 64-67, Huber expressly states (1) that the double lip seal 28 "seals the passage of the shaft 26 through the face-sided cover of the housing 16 against chips and coolant" and (2) that "O-ring seals 30 seal the respective face-sided cover of the cylindrical housing 16". That is, the area between seals 28, 30 in actuality must be the face-sided cover of the housing 16 that is expressly described as being sealed by seals 28, 30 in the Huber patent and shown as being threadably secured at cooperating threaded regions in the housing 16 (also see corresponding German patent document DE 43 10 872 A1 submitted by Applicant).

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At column 3, lines 1-5, the Huber patent expressly states that the pin holder 32 "is clamped via set screw 36 on the stump of the shaft 26 that projects beyond the housing 16". In the Huber patent, there is a space between the area between reference numerals 28, 30 referred to by the examiner (which actually is the face-sided cover of the housing) and the checking element (pin holder) 32 in order to allow the checking element to be pivoted by the motor 20. The examiner's allegation that the area between reference numerals 28, 30 abuts the housing 16 and the checking element 32 is incorrect. The Huber device is described at column 2, lines 64-67 such that the area must be the face-sided cover of the housing 16 threaded into the housing and not a seal like that recited in Applicant's claim 1 as pointed out above.

With respect to claim 3, the seals 28, 30 of the Huber are not arranged between the checking element (pin holder) 32 and the housing 16 and do not abut on both the housing and the checking element. As discussed above, the area between reference numerals 28, 30 must be the face-sided cover of the housing described at column 2, lines 64-67 and not a seal like that recited in Applicant's claim 3.

With respect to claim 4, the seals 28, 30 of the Huber patent are not arranged between the checking element (pin holder) 32 and the housing 16 and do not abut on both the housing and the checking element. As discussed above, the area between reference numerals 28, 30 must be the face-sided cover of the housing described at column 2, lines 64-67 and not a seal like that recited in Applicant's claim 4.

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With respect to claim 5, the inner seals 28 of the Huber patent appear to abut on the shaft 26 such that there is no intermediate space between the shaft and seal as set forth in claim 5.

With respect to claim 6 reciting that the seal is fixed on the checking element such that the seal rotates with the checking element relative to the housing, the Huber patent expressly states (1) that the double lip seal 28 "seals the passage of the shaft 26 through the face-sided cover of the housing 16 against chips and coolant" and (2) that "O-ring seals 30 seal the respective face-sided cover of the cylindrical housing 16". The seal 28 is fixed in position between the shaft 26 and the face-sided cover that, in turn, is threaded into the housing 16. The seals 30 are fixed in position between the housing 16 and the face-sided cover that is threaded into the housing 16. Neither the seal 28 nor the seals 30 rotate(s) with the checking element (pin holder 32). As discussed above, the area between reference numerals 28, 30 is the face-sided cover that is fixed in position by being threaded into the housing 16 and does not rotate with the checking element (pin holder) 32.

With respect to claim 7, the Huber patent expressly states (1) that the double lip seal 28 "seals the passage of the shaft 26 through the face-sided cover of the housing 16 against chips and coolant" and (2) that "O-ring seals 30 seal the respective face-sided cover of the cylindrical housing 16". The seal 28 is fixed in position between the shaft 26 and the face-sided cover threaded into the housing 16. The seals 30 are fixed in position between the housing 16 and the face-sided cover threaded into the housing 16. Neither the seal 28 nor the seals 30 is/are mounted on the pin holder 32 so as to rotate therewith.

With respect to claim 8, the examiner refers to reference numeral 32 as being a mounting element as set forth in claim 8. However,

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the Huber patent expressly states that reference numeral 32 designates the pin holder 32 that is rotated by motor 20. As discussed above, the area between seals 28, 30 in actuality is the face-sided cover of the housing 16 that is threaded into the housing and is expressly described as being sealed by seals 28, 30. This face-sided cover of the housing is not disposed on a mounting ring on the pin holder 32 and instead is part of the housing 16 as discussed above. Applicant does not understand how the area between seals 28, 30 (i.e. the face-sided cover of the housing) can be threadably mounted on the housing 16 as shown in the Huber patent and, at the same time, be mounted on the pivotable pin holder 32 as argued by the examiner. The examiner's argument flies in the face of the teachings of the Huber patent.

With respect to claim 9 which relates to an annular recess, there is no such annular recess provided on the pin holder 32 of the Huber patent.

Similarly, the Huber patent does not disclose the features of pending claim 10 which recites that an outer diameter of the seal substantially corresponds to the diameter of the checking element. The seals 28, 30 of the Huber patent teach away from claim 10. As discussed above, the area between seals 28, 30 in actuality is the face-sided cover of the housing 16 that is threaded into the housing and sealed by seals 28, 30.

SECOND ISSUE

The rejection of claim 39 as anticipated under 35 USC 102(a) by the Huber US Patent 6 130 516 is in error.

The examiner argues that Huber teaches Applicant's monitoring device set forth in claim 39 and refers particularly to a seal between a checking element (pin holder) 32 and a housing 16 in the

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area between reference numeral 28 and reference numeral 30 wherein that area allegedly abuts on the checking element (pin holder) 32 and on the end face of the housing 16.

The examiner is believed to be in error in construing the Huber '516 patent to anticipate Applicant's claim 39. In particular, the Huber '516 patent discloses a double lip seal 28 for sealing the passage of the shaft 26 through the face-sided cover of the housing 16 against chips and coolant (see patent column 2, lines 64-67) and O-rings seals 30 for sealing the respective face-sided cover of the housing 16 (see patent column 2, line 67 through column 3, line 1).

The area between reference numerals 28 and 30 referred to by the examiner as a seal in actuality comprises one end (i.e. one of the so-called face-sided covers) of the housing 16. In particular, at column 2, lines 64-67, Huber expressly states (1) that the double lip seal 28 "seals the passage of the shaft 26 through the face-sided cover of the housing 16 against chips and coolant" and (2) that "O-ring seals 30 seal the respective face-sided cover of the cylindrical housing 16". That is, the area between seals 28, 30 in actuality must be the face-sided cover of the housing 16 that is expressly described as being sealed by seals 28, 30 in the Huber patent and shown as being threadably secured at cooperating threaded regions in the housing 16.

At column 3, lines 1-5, the Huber patent expressly states that the pin holder 32 "is clamped via set screw 36 on the stump of the shaft 26 that projects beyond the housing 16". In the Huber patent, there is a space between the area between reference numerals 28, 30 referred to by the examiner (which actually is the face-sided cover of the housing) and the checking element (pin holder) 32 in order to allow the checking element to be pivoted by the motor 20. The examiner's allegation that the area between reference numerals 28, 30 abuts the housing 16 and the checking element 32 is incorrect.

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The Huber device is described at column 2, lines 64-67 such that the area must be the face-sided cover of the housing 16 threaded into the housing and not a seal like that recited in Applicant's claim 39 as pointed out above.

CONCLUSION

FIRST ISSUE

It is respectfully submitted that pending claims 1 and 3-10 are not anticipated under 35 USC 102(a) by the Huber US Patent 6 130 516.

SECOND ISSUE

It is respectfully submitted that pending claim 39 is not anticipated under 35 USC 102(a) by the Huber US Patent 6 130 516.

Respectfully submitted,

IN TRIPLICATE



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APPENDIX

1. A monitoring device for checking for a predefined position of a body or for checking for the presence of a body, comprising a pivotal checking element, a motor for driving the checking element, a housing for accommodating the motor, and a seal which is arranged between the checking element and the housing and which extends around a shaft by means of which the checking element is driven, wherein the seal abuts on the checking element and abuts on the housing.

3. A monitoring device in accordance with Claim 1, wherein the seal is formed symmetrically about an axis.

4. A monitoring device in accordance with Claim 1, wherein the seal is seated between the checking element and the housing co-axially relative to the shaft.

5. A monitoring device in accordance with Claim 1, wherein an intermediate space is formed between the shaft and the seal.

6. A monitoring device in accordance with Claim 1, wherein the seal is fixed on the checking element such that said seal rotates with said checking element relative to said housing.

7. A monitoring device in accordance with Claim 6, wherein the checking element comprises a mounting element for the seal onto which the seal is disposed in order to fix the seal on the checking element for rotation therewith.

8. A monitoring device in accordance with Claim 7, wherein the mounting element is formed by a mounting ring through which the shaft is guided and onto which the seal is disposed.

9. A monitoring device in accordance with Claim 8, wherein an annular recess for accommodating the seal is formed between the mounting element and the checking element.

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10. A monitoring device in accordance with Claim 1, wherein an outer diameter of the seal substantially corresponds to the diameter of the checking element.

11. A monitoring device in accordance with Claim 1, wherein the seal comprises a packing ring disposed on the checking element.

12. A monitoring device in accordance with Claim 1, wherein the seal comprises a collar having a V-shaped sealing lip which abuts the housing.

13. A monitoring device in accordance with Claim 12, wherein the collar is rotatable with the checking element relative to the housing.

14. A monitoring device in accordance with Claim 12, wherein the outer surface of the collar is substantially in the form of a truncated cone at least when force is not being applied thereto in the axial direction.

15. A monitoring device in accordance with Claim 14, wherein an imaginary cone peak of the collar points towards the checking element.

16. A monitoring device in accordance with Claim 14, wherein the inner surface of the collar is substantially in the form of a truncated cone at least when force is not being applied thereto in the axial direction.

17. A monitoring device in accordance with Claim 12, wherein an axial extent of the seal can be varied by the collar.

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18. A monitoring device in accordance with Claim 1, wherein a control device is provided by means of which at least one of the pivotal position, the speed, and the torque of the checking element is controllable.

19. A monitoring device in accordance with Claim 18, wherein the control device controls the pivotal position, the speed and the torque of the checking element in combination.

20. A monitoring device in accordance with Claim 18, wherein the pivotal movement is controllable by the control device in a manner such that a maximum permissible torque will lie below a predefined value for the torque.

21. A monitoring device in accordance with Claim 20, wherein the checking element is adapted to be pivoted commencing from a starting position through a transition region into a monitoring region in which the predefined position of the body lies or in which the presence of a body should be monitored, and the predefined value for the maximum permissible torque in the monitoring region is reduced relative to that in the transition region.

22. A monitoring device in accordance with Claim 20, wherein the motor is an electric motor and the controlling of the maximum permissible torque is effected by limiting the supply of current to the motor.

23. A monitoring device in accordance with Claim 21, wherein the speed of the checking element is reducible during its transfer from the transition region into the monitoring region.

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24. A monitoring device in accordance with Claim 23, wherein the reduction of the maximum permissible torque is effected after the reduction in the speed of the checking element.

25. A monitoring device in accordance with Claim 21, wherein the transition region comprises an acceleration region in which the speed of the checking element is increased commencing from the starting position.

26. A monitoring device in accordance with Claim 21, wherein the transition region comprises a braking region in which the speed of the checking element is reduced.

27. A monitoring device in accordance with claim 21, wherein the speed of the checking element in the transition region is maintained substantially constant between an acceleration region and a braking region of the transition region.

28. A monitoring device in accordance with claim 21, wherein the speed of the checking element is maintained substantially constant in the monitoring region.

29. A monitoring device in accordance with Claim 18, wherein the control device comprises a digital angle transmitter for controlling the pivotal movement of the checking element.

30. A monitoring device in accordance with Claim 29, wherein the speed and the torque of the checking element are controlled by the control device by means of time-dependent controlling of the position of the checking element.

31. A monitoring device in accordance with Claim 29, wherein the control device sets the pivotal position of the checking element.

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32. A monitoring device in accordance with Claim 29, wherein the control device sets the speed of the checking element.

33. A monitoring device in accordance with Claim 30, wherein the control device sets the pivotal position and the speed of the checking element.

34. A monitoring device in accordance with Claim 21, wherein the control device is adapted to undergo a learning cycle for determining the monitoring region.

35. A monitoring device in accordance with claim 34, wherein the monitoring region is set by the control device such that it begins at a certain angular amount prior to the learnt position at which a body is detected in the learning cycle.

36. A monitoring device in accordance with Claim 1, wherein stop means are provided for limiting pivotal movement of the checking element.

37. A monitoring device in accordance with claim 36, wherein, for the purposes of setting a reference position of the checking element, the checking element is moved at a predefined speed to a stop position in which the stop means touch.

38. A monitoring device in accordance with Claim 37, wherein, for the purposes of defining the reference position of the checking element in the stop position, the stop means are rotated against each other at low torque.

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39. A monitoring device for checking for a predefined position of a body or for checking for the presence of a body, comprising a pivotal checking element, a motor having a shaft for driving the checking element, a housing for accommodating the motor and having an end face through which the shaft passes, and a seal which is arranged between the checking element and the end face of the housing and which extends around said shaft, wherein the seal abuts on the checking element and abuts on the end face of the housing.